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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,967	03/01/2002	Reimar Lenz	1964/50924	2197

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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,967

Applicant(s)

LENZ, REIMAR

Examiner

LUONG T. NGUYEN

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,5 and 9-20 is/are allowed.
- 6) ☒ Claim(s) 1-3,6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 07/06/2006 have been fully considered but they are not persuasive.

In re page 11, Applicant argues that Yadid-Pecht does not disclose or suggest the feature “a control device which delays sampling for a first sample value by a predetermined delay time after reset.”

In response, the examiner considers that Yadid-Pecht does disclose this feature. Yadid-Pecht discloses a control circuit which generates a series of reset pulses of constant predetermined frequency and duty cycle. Yadid-Pecht also disclose a series of sampling pulses of predetermined duty cycle and of the same frequency of the reset pulses is also generated with a constant predetermined delay with respect to the reset pulses (column 5, lines 35-56).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yadid-Pecht (US 6,831,689).

Regarding claim 1, Yadid-Pecht discloses a digital camera having a CMOS image sensor (electronic camera having optical imagers, figure 1, column 1, lines 19-28, column 4, lines 52-67) with a plurality of pixels each storing within an exposure time (integration time of each pixel, column 4, lines 52-67) a brightness-dependent charge which is out-putted as a pixel signal under the control of a control device (control circuit 14, figure 1, column 5, lines 5-56) and a correction device which, after a pixel RESET of the image sensor, forms the difference from first and second sampled values detected toward the onset and end of the exposure time for the pixel, and outputs the second sampled value reduced by the first sampled value as the wanted signal (column 5, lines 5-56), characterized in that the control device delays the sampling for the first sampled value by a predetermined delay time (a constant predetermined delay, column 5, lines 35-56) after RESET.

Claim 7 is a method claim of apparatus claim 1. Therefore, claim 7 is rejected for the reason given in claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yadid-Pecht (US 6,831,689) in view of Bell et al. (US Patent Application 2004/0212704).

Regarding claim 2, Yadid-Pecht fails to specifically disclose the delay time corresponds to about 1 percent to 20 percent, preferably 2 percent to 10 percent, of the exposure time.

However, Bell et al. teaches a method to reduce noise in an imaging system, in which a delay time of 500 micron second corresponds to 20 percent of an integration time of 2.5 ms (page 3, paragraph [0036]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yadid-Pecht by the teaching of Bell et al. in order to reduce the effect of noise (page 1, paragraph [0020]).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yadid-Pecht (US 6,831,689) in view of Gowda et al. (US 6,115,066).

Regarding claim 3, Yadid-Pecht fails to specifically disclose the first sampled value for a particular pixel is stored digitally in an image memory, and the stored, digital sampled value is subtracted digitally from the second, digital sampled value. However, Gowda et al. teaches a CMOS image sensor with direct digital correlated double sampling circuitry, in which a first digital codeword corresponds to first sampling interval is stored in digital register 42j, the first codeword is subtracted from the signal value corresponding to a second codeword which corresponds to second sampling interval (figure 3-4, column 3, lines 15-26, column 6, line 20 – column 7, line 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yadid-Pecht by the teaching of Gowda et al. in order to eliminate errors due to transistor mismatches, offsets and noise in the final image data (column 7, lines 12-16).

Art Unit: 2622

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable 103(a) over Yadid-Pecht (US 6,831,689) in view of Gowda et al. (US 6,115,066) further in view of Koren et al. (US 6,831,686).

Regarding claim 6, Yadid-Pecht and Gowda et al. fail to specifically disclose wherein a dark value offset memory is provided, and an offset value belonging to a particular pixel and prestored in the dark value offset memory is subtracted from the first sampled value of said pixel. However, Koren et al. teaches a device for the exposure-dependent noise correction in image sensor, in which offset value is stored in RAM, then the offset value is subtracted in summer S1 (figure 2, column 3, lines 4-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yadid-Pecht and Gowda et al. by the teaching of Koren et al. in order to obtain a device for noise correction image sensor, in which fixed pattern noise correction can be coordinated with the illumination conditions and the correction components can be switched on and off individually (column 1, lines 52-55).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yadid-Pecht (US 6,831,689) in view of Bell et al. (US Patent Application 2004/0212704) further in view of Gowda et al. (US 6,115,066).

Regarding claim 3, Yadid-Pecht and Bell et al. fail to specifically disclose the first sampled value for a particular pixel is stored digitally in an image memory, and the stored, digital sampled value is subtracted digitally from the second, digital sampled value. However, Gowda et al. teaches a CMOS image sensor with direct digital correlated double sampling

Art Unit: 2622

circuitry, in which a first digital codeword corresponds to first sampling interval is stored in digital register 42j, the first codeword is subtracted from the signal value corresponding to a second codeword which corresponds to second sampling interval (figure 3-4, column 3, lines 15-26, column 6, line 20 – column 7, line 20). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yadid-Pecht and bell et al. by the teaching of Gowda et al. in order to eliminate errors due to transistor mismatches, offsets and noise in the final image data (column 7, lines 12-16).

Allowable Subject Matter

9. Claims 4, 5, 9-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 4, 9, 10, 11, the prior art of the record fails to show or fairly suggest a digital camera having a CMOS image sensor, wherein a comparator device compares the second sampled value or the first sampled value with a threshold value (T_h), and wherein, if the threshold value is exceeded, the first sampled value, preferably multiplied by a scaling factor, is outputted as the wanted signal.

Claims 5, 15-16 are allowable for the reason given in claim 4.

Claims 12, 17, 20 are allowable for the reason given in claim 9.

Claims 13, 18 are allowable for the reason given in claim 10.

Claims 14, 19 are allowable for the reason given in claim 11.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

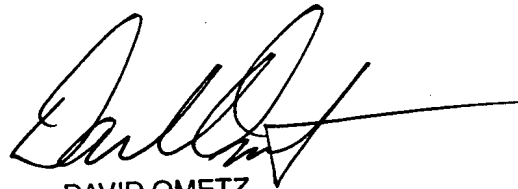
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN LN
10/15/06

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ
SUPERVISORY PATENT EXAMINER